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ABSTRACT

This paper contributes to the recovery of finance reform by providing a rough gauge that will allow individual states to evaluate their positions among their peers regarding several basic equity principles and measures. Changes in these equity measures over an 8-year period are assessed, and some of the correlates of equity at the state level are evaluated. This report uses consistently calculated equity measures: "horizontal equity" and "equal opportunity." Given any pupil resource, horizontal equity asks, "Do students receive equal amounts of this resource?" Equal opportunity raises the question, "Is the distribution of pupil resources independent school district wealth, as measured by a given indicator?" The two student resource variables used are per pupil operating expenditures and the teacher-student ratio. Also examined are per pupil revenues by major sources of revenues (local, state, and federal). In the analysis of the relationship between district wealth and equal opportunity, three variables are used: median family income, poverty concentration, and property wealth. Two methods of assessing equal opportunity are used in this analysis: the simple correlation coefficient measures the association between wealth and resource levels within a state; the second method is the display of separate averages of the student resource variables by groups of school districts, classified into one of four quartiles of wealth. Data are displayed in 16 tables and 7 figures. (MLF)

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FISCAL EQUITY IN THE UNITED STATES, 1984-85

by

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February 26, 1988

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FISCAL EQUITY IN THE UNITED STATES, 1984-1985

I. INTRODUCTION

This paper is overdue. It has been eight years since the last major assessment of how equitably educational resources are distributed in this country. Although not clinically dead, school finance reform, particularly as a sustained national movement, has been comatose for roughly a decade. As a result, we have very little idea, on a national level, of how much equity there is today. How are we doing? On the whole, have we made progress? Or have we slipped backwards? We venture to suggest some answers in this report.

There are three general reasons for the evaporation of finance reform activity during the past ten years. First, States seemed to become less concerned with meeting the promises of equalization they held out earlier in response to judicial mandates and legislative initiatives; without prodding from the courts, States seemed to revert to former priorities. Second, as the national spotlight focused increasingly on concern with poor student performance in the classroom, less attention was devoted to such issues as fiscal equity. The objectives of finance reform were seen as not nearly as pressing as they had been a decade before. Finally, the principal studies, funded mainly by the Federal Government and the Ford Foundation, were concluding at that time, and many of the participants in those efforts moved on to other activities. We emphasize, however, that the movement is not defunct, merely dormant. There is reason to believe that concerns over equitable school financing have merely been on the down slope of a cyclical curve that is beginning to rise again.

Indeed, there are signs of a resuscitation. Litigation, which fueled a significant number of reform events during the last period of activism, is beginning or restarting in a number of states. California and Connecticut are entering yet another round in their ongoing court battles, and new cases are being argued in New Jersey, challenging the results of the last round of litigation. New cases are underway in Louisiana, Texas, and Florida, as well.

For the first time in a decade, the Supreme Court has addressed the question of funding of education in *Papasan v. Allain*. The case concerns Mississippi's misuse of the Indian Trust Funds, which were the basis of school finance funding for 23 counties formerly comprising the Chickasaw Indian Nation. The Court concluded that *Rodriguez* did not "purport to validate all funding variations that might result from a state's public school funding decisions." Only those allowing local control over local property-

tax funding were ruled to be permissible. From a combination of these new litigation efforts may come new legal strategies.

In addition, the recent drive for curriculum reform, increased teacher quality, and higher graduation standards is beginning to encounter the inevitable question of how the desired outcomes are going to be paid for. The crusaders of no cost reform are colliding with the reality of recruiting and retaining high-quality teaching and administrative staffs, at a time when Federal dollars are becoming increasingly scarce and State dollars more categorical.

Third, in the ebb and flow between the Federal Government's desire for data and its concern over the burden data requirements impose on States and localities, the pendulum seems to be swinging back to a desire for more data. The efforts for State-representative NAEP, the new CES teacher survey, and the redesign of CCD elementary and secondary education finance data are examples of this trend. This anticipated data influx should make more comparative and multistate fiscal analysis possible.

While the finance reform movement at the national level shows signs of a strengthening pulse, each State will necessarily continue to evaluate its own unique equity objectives and conditions. No two States will embrace the exact same goals and agenda. This paper makes no attempt to supersede those necessary State analytical efforts. Rather, we hope to contribute to the recovery of finance reform by providing a rough guage that will allow individual States to evaluate their positions among their peers regarding several basic equity principles and measures. We also assess changes in these equity measures over an eight-year period, and evaluate some of the correlates of equity at the State level.

II. MEASURING FISCAL EQUITY

In contrast to nearly all existing equity studies, which focus on only one State, or at most a few, this report uses consistently calculated equity measures to allow for comparisons and rankings among all States. For this purpose, we employ two of the least complex conceptions of fiscal equity: "horizontal equity" and "equal opportunity."[1]

Given any pupil resource, horizontal equity asks, "Do students receive equal amounts of this resource?" The degree of equity is highest where the response

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[1]See *The Measurement of Equity in School Finance*, Berne, Robert and Leanna Stiefel, Baltimore: Johns Hopkins, 1984.

approximates a categorical "yes," and, conversely, the greater the departure from such a response, the greater the inequity. Measurement methods of horizontal equity vary according to the selection of students used for comparison, and also by the quantitative weighting of resource differences.

Equal opportunity raises the question, "Is the distribution of pupil resources independent of school district wealth, as measured by a given indicator?" Again, to the degree the response approaches "yes," it would indicate equality of opportunity. The assumption is that resources are equitably distributed only if they are independent of the affluence of a school district. Variables of equal opportunity are essentially bivariate measures of association and, as such, can be used to indicate the strength of a relationship, the pattern of a relationship, or both.

Resource Variables

The two student resource variables used here are per pupil operating expenditures and the teacher/student ratio, or total teachers per 1,000 students. The former is defined as operating expenditures (total expenditures minus outlays for capital items and construction costs) divided by fall enrollment. The second variable is derived from the total PK-12 teachers divided by fall enrollment in thousands. All data describe the 1984-85 school year.

We also examined per pupil revenues by major sources of revenues (local, State, and Federal).

Student counts for the resource variables used here make no adjustments for special need students, nor were any adjustments made for the relative proportions of elementary and secondary school students. There is a wide range of funding formulas, both State and Federal, which either disproportionately weight counts for special need students (handicapped, compensatory education, bilingual, and secondary grade level) or categorically direct resources toward these students. Since there is no simple, efficient way to reconcile these different weighting and counting systems, we chose to consider all students equally.

Wealth Variables

In the analysis of the relationship between district wealth and equal opportunity, we use three variables: median family income, poverty concentration, and property wealth. Poverty concentration is defined as the percent of 5- to 17-year-olds (in families for which poverty status has been determined) below the poverty threshold in

calendar year 1979. Poverty status as stipulated by the Census Bureau incorporates income, family size, and the presence of children under 18 as determining factors. Median family income is defined and calculated by the Census Bureau. For property wealth, we consider 1984-85 data per pupil. In some States these data represent assessed value, whereas in other States property values have been equalized. Table A3, appended to this report, identifies the valuation method used.

Measuring Horizontal Equity

Three measures of horizontal equity are used in this paper: the Federal Range Ratio (FRR),[2] the McCloone Index (MI),[3] and the Coefficient of Variation (CV).[4] The general concept behind horizontal equity maintains that perfect equity exists only when all districts receive exactly the same quantity of resources. Operationally, however, indices of horizontal equity measure various departures from this ideal distribution of resources. In a more general sense, they measure the dispersion of a distribution of resources. The three measures used here measure different components of such dispersion.

For comparison with historical data, we also include a range measure analogous to the FRR, but measured on a different scale. This measure is the ratio of the value at the 95th percentile of a distribution of resources to the value at the 5th percentile. Also for comparability, we include Theil's Measure, an index of overall variation in a

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[2]The FRR is defined as: $(X_i(P_{95}) - X_i(P_5))/X_i(P_5)$

[3]The MI is defined as: $$\sum_{i=1}^{med} (S)(R)/(R_{med}) \Big/ \sum_{i=1}^{med} S$$

where:

S=district enrollment
R=district resource level
R_{med}=median district resource level
med=median case
$X_i(P_{95})$=value at 95th percentile
$X_i(P_5)$=value at 5th percentile

summed from the lowest district to the median district (only that proportion of median district scoring below median student is included).

[4]The CV is defined as the student weighted standard deviation of a resource distribution divided by the mean of that distribution: SD/MEAN.

resource distribution. Although it reflects a different scale of measurement, Theil's Measure is closely related to the CV.[5]

All measures of horizontal equity are based on district-level data weighted to reflect enrollment counts. This procedure, also known as pupil unit of analysis, treats the data as a distribution of students and assigns district averages as attributes to each of these students.

Measuring Equal Opportunity

Two methods of assessing equal opportunity are used in this analysis. The first is the simple correlation coefficient. Although this method measures the association between wealth and resource levels within a State, a high correlation coefficient does not always indicate large resource differences among districts; it merely reflects a systematic, linear relationship between the wealth indicator and the resource indicator. That is, the linear function rule may fit the data quite well, but the change in resources associated with a change in wealth may be very small. Furthermore, the correlation coefficient does not distinguish between a case in which the functional form is systematic but not linear, as opposed to one in which the two indicators are truly independent of one another.

Because of these characteristics of the correlation coefficient, we have chosen a second method of measuring equal opportunity. We display the separate averages of the student resource variables by groups of school districts, classified according to their values on the wealth indicators (school districts are classified into one of four quartiles of wealth). This method provides an indication of the magnitude of resource differences among districts within a State.

Data Sources

All revenue and expenditure data have been obtained from the Finances of Public School Systems electonic data file compiled by the Bureau of the Census (F33).[6] Thirty-three of the States in this file include data from all school districts, whereas in 17 States, districts were sampled. Weights reflecting (the inverse of) sample inclusion

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[5]Evidence from several distributions of CV's and Theil's Measures indicate that the measures are correlated near unity.

[6]This data is a subset of data collected for the Annual Survey of Government Finances conducted by the U.S. Bureau of the Census.

probabilities have been applied to all districts in these States. In all tables, where data are based on samples of school districts, an asterisk precedes the State name.[7]

District wealth measures which have been obtained from the Census STF3F file[8] are also based on sample data, although the sampling procedures were undertaken at a more basic level. In contrast to the F33 file, in which school districts were sampled, households were sampled in the STF3F file to arrive at population summary measures for each school district. These summary measures are then provided for the entire universe of school districts. The data are based upon 1980 census data specially mapped and aggregated to school district boundaries. Although the sampling fraction used by the Census Bureau varies from place to place, the average sampling fraction for estimating population characteristics of school districts in this data base is approximately 20 percent.[9]

Data from 49 States are included in the analyses which follow; Hawaii was eliminated since it is comprised of only a single consolidated school district. Teacher/student ratios are based on only 48 States, as data for Michigan were unavailable. And similarly, because of missing data, property wealth variables are compiled from only 45 States.

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[7]It is difficult to assess the impact of these sampling procedures on this study's estimates of fiscal equity, largely for two reasons. First, probability distributions of equity statistics are either unknown or are difficult to obtain, and second, the sampling procedures employed are quite complex and variance estimates are not straight-forward. Consequently, caution should be exercised in the interpretation of equity estimates from sample States. The reader should be aware that these are sample estimates only and are subject to sampling error. The most problematic statistic is the Federal Range Ratio, since the accuracy of this estimate is based, in large part, on the size of the sampling fraction and is not a reflection of the stochastic processes which affect the efficiency of most sample statistics. The reader is also cautioned that national averages, national trend data, and correlations involving State equity measures calculated for this paper are a reflection of both universe and sample States.

[8]Census of Population and Housing, 1980: Summary Tape File 3F, machine readable data file, prepared by the Bureau of Census. Associated technical documentation is also available.

[9]The consequences of sampling at this stage of data collection are quite different from more traditional sampling procedures. The net effect of using sample estimates for the values of individual data items is to increase the random error of the measurement process. In effect, sampling error at this early stage is translated into measurement error at the level on which our analyses is undertaken. The reader is therefore cautioned against interpreting small differences between correlation coefficients as consequential.

III. HORIZONTAL EQUITY--WHERE ARE WE IN 1984-85?

After a decade of quiet in the school finance equity movement, just how much equity is there today, and how has it changed? Not much. Nationwide, we are just about where we were eight years ago.

Selected measures of horizontal equity of various pupil resources for school years 1984-85 and 1976-77[10] are presented in table 1. The averages shown are based on pupil-weighted equity measures within States, but the figures themselves are simple, unweighted averages of equity measures in all States. Completely comparable expenditure indicators are not available for the two years, but some comparisons can be made, nonetheless. For 1984-85, we use per pupil operating expenditures, which are essentially total expenditures minus capital costs. In the data for 1976-77, two expenditure indicators were used: per pupil total expenditures, in which all outlays are included, and per pupil core expenditures, in which only direct educational costs are included.

Even considering this limited comparability, however, it is evident that no major changes in average equity have occurred over that period. The value of each of the 1984-85 expenditure measures indicates less equity than those calculated for 1976-77 core expenditures, but greater equity than the values for 1976-77 total expenditures.

More precisely, the first row of values in table 1 summarizes average equity for operating expenditures for 1984-85. The two range measures (ratio 95/5 and FRR) indicate that students in a typically high-expenditure district in an average State represent operating outlays that are about 65 percent higher than those for students in a typically low-expenditure district. At the same time, students in low-expenditure districts represent outlays that are about 91 percent of those dedicated to the median student in the same State, as reflected by the McLoone Index. Although we do not have FRR and McLoone Index data for 1976-77 (last three lines of table 1), the 95/5 ratio shows that students in an average high-expenditure district represented core expenditures that were about 64 percent higher than those for students in a typically low-expenditure district. Students in high-expenditure districts also represented 76 percent more total expenditures per capita in 1976-77 than students in low-expenditure districts.

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[10]All equity estimates for 1976-77 are based on unpublished research sponsored by the U.S. Department of Education, National Center for Education Statistics.

TABLE 1: MEAN WITHIN STATE EQUITY, UNITED STATES, 1976-77 AND 1984-85

RESOURCE	EQUITY MEASURE: Ratio of 95th to 5th	Federal Range Ratio	Coefficient of Variation	Theil's measure	McLoone Index
1984-85					
per pupil operating expenditures	1.65	0.66	0.19	1.88	0.91
teachers per 1,000 students	1.45	0.45	0.16	1.20	0.94
1976-77					
per pupil core expenditures	1.64	--	0.16	1.37	--
per pupil total expenditures	1.76	--	0.20	1.99	--
teachers per 1,000 students	1.53	--	0.14	0.97	--

note: All within state equity measures are pupil weighted. The mean of within state equity treats all states with equal weight. 1976-77 data exclude Hawaii and Montana. 1984-85 data exclude Hawaii and (for teacher ratio only) Michigan.

Similarly, the Theil's Measure for per pupil operating expenditures in 1984-85 is 1.88, which compares to 1.37 for per pupil core expenditures and 1.99 for per pupil total expenditures in 1976-77.

Average equity measures for the second pupil resource variable--teacher/student ratio--are shown in the second and last rows of table 1. The two range measures indicate that on average, for 1984-85, students in a typically high teacher/student ratio district have about a 45 percent higher ratio than students in a low-ratio district. The McLoone Index indicates that a student in a low-ratio district receives on average about 94 percent of the teacher resources the median student receives.

When comparing the teacher/student ratio resource variable, the 95/5 ratio shows a figure of 1.53 for 1976-77 and 1.45 for the same measurement eight years later. The Theil's Measure for the same variable was 0.97 for 1976-77 and 1.20 in 1984-85.

In short, between 1976-77 and 1984-85, average equity for teacher/student ratios has not changed significantly. Range measures indicate a slight increase in equity, but other variance measures suggest a slight decrease.

Distribution of Operating Expenditures

Table 2 is a listing of States and their rankings for each of three measures of per pupil operating expenditure equity. (The raw equity scores are presented in table A1.) Two States, West Virginia and Iowa, are among the five highest equity States on all three measures. North Carolina, South Carolina, and Nevada are ranked among the top five States on two of the three measures, and are among the top ten on all three measures.

One of these States, Nevada, is a special case, since it serves to illustrate that high equity scores may be a result of different circumstances in different States. In Nevada, 59 percent of all students are enrolled in Clark County, the school district serving Las Vegas. Clark County also has the lowest per pupil operating expenditure of any district in the State. Regardless of the resource distribution in the remaining counties, these circumstances will result in Nevada having the highest possible McLoone Index (unity), since all students in the lower half of the resource distribution receive the same quantity of resources, simply because they are in the same district. In general, when a single school district accounts for a large proportion of a State's enrollment and the pupil unit of analysis is used, general variance measures (CV, Theil) will appear low and the McLoone Index may be subject to unusual influences, such as those affecting Nevada.

TABLE 2: STATE RANKINGS FOR SELECTED MEASURES OF HORIZONTAL EQUITY OF PER PUPIL OPERATING EXPENDITURES, 1984-85

STATE	RANK FOR FRR	RANK FOR CV	RANK FOR MI	MEAN DISTRICT OPER. EXP.	NUMBER OF DISTRICTS IN ANALYSIS
*ALABAMA	9	7	7	$2,005	84
ALASKA	49	48	45	$7,617	33
*ARIZONA	22	26	28	$2,539	67
*ARKANSAS	14	13	18	$2,284	78
CALIFORNIA	13	12	20	$3,170	1,023
*COLORADO	6	9	41	$3,260	83
CONNECTICUT	32	36	31	$3,960	165
DELAWARE	11	11	48	$3,773	16
FLORIDA	7	4	12	$3,320	67
*GEORGIA	36	31	34	$2,470	75
IDAHO	21	25	22	$2,027	114
HAWAII	--	--	--	--	1
ILLINOIS	46	44	46	$3,162	1,003
*INDIANA	20	16	33	$2,927	183
IOWA	3	2	3	$3,183	438
KANSAS	25	21	13	$3,257	304
*KENTUCKY	28	24	10	$2,169	77
LOUISIANA	12	10	11	$2,594	66
MAINE	26	30	32	$2,770	224
MARYLAND	27	17	9	$3,310	24
MASSACHUSSETTS	43	42	35	$3,703	350
MICHIGAN	33	35	44	$3,162	567
MINNESOTA	23	20	17	$3,486	433
*MISSISSIPPI	19	23	27	$2,030	80
MISSOURI	44	37	38	$2,797	544
*MONTANA	47	49	47	$3,821	100
NEBRASKA	41	40	43	$3,417	935
NEVADA	1	6	1	$2,780	17
NEW HAMPSHIRE	45	45	25	$3,114	157
*NEW JERSEY	34	29	42	$4,294	378
*NEW MEXICO	15	18	26	$3,048	39
NEW YORK	39	38	2	$4,805	710
NORTH CAROLINA	5	3	8	$2,560	141
NORTH DAKOTA	35	46	29	$3,365	288
OHIO	40	41	36	$3,129	612
*OKLAHOMA	24	33	21	$2,571	112
*OREGON	17	14	14	$3,709	125
PENNSYLVANIA	38	34	40	$3,626	499
RHODE ISLAND	4	8	24	$3,748	40
*SOUTH CAROLINA	8	5	5	$2,545	66
*SOUTH DAKOTA	30	32	37	$2,917	109
TENNESSEE	31	27	39	$2,102	138
TEXAS	29	28	23	$2,878	1,072
*UTAH	10	22	15	$2,314	31
*VERMONT	48	47	49	$3,879	127
VIRGINIA	42	39	30	$3,111	135
WASHINGTON	18	19	6	$3,292	299
WEST VIRGINIA	2	1	4	$2,820	55
WISCONSIN	16	15	16	$3,840	432
WYOMING	37	43	19	$5,193	49

note: The lower the rank the greater the horizontal equity.

Considering States with low equity, three of them--Montana, Vermont, and Alaska--have among the five lowest equity scores on all three measures of operating expenditure equity. Two others, Illinois and New Hampshire, are among the five lowest on two of the three equity measures. North Dakota and Delaware rank among the bottom five on only one measure. In contrast, Delaware, which ranked second to last on the McLoone Index, was ranked 11th highest on both the Coefficient of Variation and the Federal Range Ratio.

Although there are differences in the basic fiscal characteristics between those States ranking highest in equity and those ranking lowest, no conclusive patterns emerge.[11] In both the highest and lowest equity States, the range of State contributions to total educational revenues is considerable. In addition, consistent with the general trend nationwide, foundation formulas for the distribution of noncategorical State funds predominate in both the highest and lowest equity States. Finally, no definitive differences appear between these two groups of States with respect to school district fiscal autonomy; independent school systems are the rule in both groups.

Distribution of Teacher/Pupil Ratios

Two States rank among the five highest on all three equity measures (table 3) for teacher/pupil ratio: North Carolina and Florida. South Carolina ranks among the top five on two of the measures (FRR and CV), and Delaware, Maryland, West Virginia, Nevada, and Wyoming each score among the top five on one of the measures.

On the other extreme, Alaska is the only State ranking among the lowest five for teacher/pupil ratio equity on all three measures. Massachusetts and Montana are among the bottom five according to two of the measures (McLoone and FRR). As with the patterns observed with operating expenditure equity, no definitive differences of basic fiscal characteristics are evident between the highest and lowest teacher/student ratio equity States.

Equity in Terms of Both Resources

As would be expected, there is a tendency for States to be ranked high on teacher/student ratio equity if they rank high on operating expenditure equity.

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[11]These basic State fiscal characteristics have been obtained from, *School Finance at a Glance, 1985-86*, prepared by the Education Commission of the States, Denver, Colorado.

TABLE 3: STATE RANKINGS FOR SELECTED MEASURES OF HORIZONTAL EQUITY OF TEACHERS PER 1,000 STUDENTS, 1984-85

STATE	RANK FOR FRR	RANK FOR CV	RANK FOR MI	MEAN DISTRICT TEACHERS/1000	NUMBER OF DISTRICTS IN ANALYSIS
*ALABAMA	8	7	19	49	84
ALASKA	47	44	46	59	33
*ARIZONA	16	27	7	51	67
*ARKANSAS	35	22	32	55	78
CALIFORNIA	12	38	33	43	1,023
*COLORADO	36	32	23	53	83
CONNECTICUT	32(tie)	26	27	70	165
DELAWARE	1	6	15	59	16
FLORIDA	5	5	5	57	67
*GEORGIA	15	11	36	54	75
IDAHO	26	24	20	48	114
HAWAII	..	..	..	..	1
ILLINOIS	37	28	9	54	1,003
*INDIANA	17	45	29	53	183
IOWA	41	31	45	64	438
KANSAS	42	35	34	65	304
*KENTUCKY	11	9	26	51	77
LOUISIANA	10	19	30	53	66
MAINE	23	18	24	62	224
MARYLAND	6	2	12	56	24
MASSACHUSSETTS	44	37	47	73	350
MICHIGAN	..	..	..	..	567
MINNESOTA	34	40	21	56	433
*MISSISSIPPI	20	12	31	54	80
MISSOURI	38	47	38	60	544
*MONTANA	48	42	48	59	100
NEBRASKA	43	46	25	55	935
NEVADA	9	10	1	49	17
NEW HAMPSHIRE	27	25	42	63	157
*NEW JERSEY	25	36	37	65	378
*NEW MEXICO	13	15	17	53	39
NEW YORK	29	41	43	62	710
NORTH CAROLINA	3	1	4	52	141
NORTH DAKOTA	46	43	40	61	288
OHIO	14	33	14	53	612
*OKLAHOMA	39	34	18	59	112
*OREGON	30	21	8	55	125
PENNSYLVANIA	32(tie)	48	39	59	499
RHODE ISLAND	24	14	10	64	40
*SOUTH CAROLINA	4	3	16	56	66
*SOUTH DAKOTA	45	39	41	68	109
TENNESSEE	21	13	35	49	138
TEXAS	28	23	28	57	1,072
*UTAH	2	16	2	42	31
*VERMONT	40	29	44	67	127
VIRGINIA	18	8	11	58	135
WASHINGTON	22	20	13	48	299
WEST VIRGINIA	7	4	6	63	55
WISCONSIN	19	17	22	59	432
WYOMING	31	30	3	70	49

note: The lower the rank the greater the horizontal equity.

However, the correlation is not perfect, and there are States which rate high on equity in terms of one of these resources but low regarding the other.

There are several possible reasons why this inconsistency occurs. First, the combination of State and local choices in developing their mix of instructional resources may lead to inconsistent equity. Some choices may be teacher-intensive, while others may require greater concentration of aides or hardware. Second, foundation formulas are linked to teacher resources in a variety of ways. In some States the foundation amount is based on statewide salary schedules, whereas in others it is linked to teacher-based pupil counts, or it is simply a flat foundation grant. Other factors that may lead to nonconstant equity include the geographic density of students and variations of such density, the mix and concentration of special-need and secondary students, and differential costs of purchasing education services within a State. For now, given the scope of this paper, we can do no more than raise such considerations.

We can, however, observe patterns in the data. Upon examination of both resources, three groups or clusters of States deserve attention:

1) States ranking consistently high on equity for both resources,

2) States ranking consistently low on equity for both resources, and

3) States which have high equity on one resource but low equity on the other.[12]

North Carolina and West Virginia lead the first group, with the highest overall equity for both resources, followed closely by Nevada and Florida. In the second group, Alaska and Montana are at the bottom, followed by Massachusetts and Missouri. The third group includes Virginia, Illinois, Ohio, and Iowa as the States with the greatest disparities of equity measurements.

Identifying clear contrasts among these clusters is difficult. Nonetheless, some differences are apparent in terms of basic fiscal and demographic characteristics. In

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[12]For States to be classified in the consistently high equity group, they must have an average rank (across the three equity measures) in the top ten States for both resource variables. We have already noted there are inconsistent rankings across equity measures for the same resource. Consequently, classification into this group does not imply that the State is among the top ten on every equity measure for both resources, but that on average--for each resource--it ranks among the top ten. Classification for the consistently low equity group was conducted in a similar manner. States were classified as inconsistent if the difference in mean equity ranks for both resources was at least 20.

particular, distinctions which were not evident when high- and low-equity States were differentiated on the basis of a single resource alone begin to emerge when these States are sorted according to consistent overall equity. All States in the consistently high equity group distribute funds through some variation of a foundation formula, whereas the consistently low equity States use a variety of formulas. The average State share in the high-equity group is 58 percent, and no State in this group contributes less than 50 percent to the State's total educational revenues. The average State share in the low-equity group is only 44 percent, and with the exception of Alaska, no State contributes more than 50 percent.

On average, the consistently high equity States have lower teacher salaries, lower per pupil expenditures, lower per capita incomes, and higher poverty concentrations than the consistently low equity States.[13]

IV. EQUAL OPPORTUNITY--WHERE ARE WE IN 1984-85?

Here we examine where the nation stands in 1984-85 in terms of equal opportunity measures relative to 1976-77, and note patterns of how the States rank among each other on this issue. As is the case with horizontal equity, on balance there has been no discernible movement on how equitably we as a society distribute educational resources despite concentrations of wealth.

As tables 4 through 8 and 10 through 12 indicate, many States seem to show a wealth-neutral dispersion of resources in terms of per pupil operating expenditures and teacher/student ratios, while others reveal strong negative correlations on these variables--meaning the disperson of resources favors less affluent districts. But comparable numbers of States continue to manifest strong positive correlations between district wealth and level of resources devoted to education.

Specifically, the third and fourth rows of table 4 show figures comparing the average correlation between State and local revenues and per pupil property wealth for both 1976-77 and 1984-85.[14] The mean correlations for these two years are very similar, .55 and .50, respectively, indicating that although equal opportunity in

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[13]These demographic and fiscal features are obtained from, *State Education Statistics (A Wall Chart)*, prepared by the U.S. Department of Education, Office of Planning, Budget, and Evaluation, February 1987.

[14]The correlations on which the averages in table 4 are based are pupil-weighted; the mean of these correlations are simple unweighted averages for all States.

TABLE 4: MEAN WITHIN STATE CORRELATIONS BETWEEN WEALTH AND STUDENT RESOURCES, UNITED STATES, 1976-77 AND 1984-85

RESOURCE MEASURE	WEALTH MEASURE: poverty percent	median family income	property valuation
per pupil operating expenditures, 1984-85	.08	.12	.45
teachers per 1,000 students, 1984-85	.13	-.10	.24
state and local revenue, 1976-77	--	--	.55
state and local revenue, 1984-85	--	--	.50

TABLE 5: MEASURES OF THE RELATIONSHIP BETWEEN DISTRICT MEDIAN FAMILY INCOME, 1979 AND DISTRICT OPERATING EXPENDITURES, 1984-85, BY STATE

STATE	CORRELATION	RANK OF CORRELATION	.... MEAN OPERATING EXPENDITURES ... LO QUARTILE OF INCOME	2ND QUARTILE OF INCOME	3RD QUARTILE OF INCOME	HI QUARTILE OF INCOME
*ALABAMA	.27	34	2,025	1,966	1,979	2,035
ALASKA	-.50	2	13,574	7,049	5,603	10,825
*ARIZONA	-.03	13	2,682	2,505	2,482	2,519
*ARKANSAS	.06	19	2,360	2,196	2,175	2,361
CALIFORNIA	-.08	10	3,116	3,103	3,257	3,091
*COLORADO	.28	35	3,010	3,004	3,350	3,381
CONNECTICUT	.31	37	3,782	3,873	3,787	4,389
DELAWARE	.74	48	3,380	3,072	3,371	4,171
FLORIDA	.30	36	3,161	3,138	3,204	3,409
*GEORGIA	.21	31	2,580	2,255	2,435	2,566
IDAHO	-.06	12	2,205	1,941	2,038	2,030
HAWAII	..	..	..	..	..	..
ILLINOIS	.36	41	3,179	2,702	2,882	3,584
*INDIANA	.13	25	2,866	2,901	2,978	2,991
IOWA	-.10	9	3,220	3,210	3,135	3,191
KANSAS	-.16	8	3,541	3,510	3,324	3,129
*KENTUCKY	.48	44	1,944	2,047	2,059	2,464
LOUISIANA	.13	24	2,412	2,733	2,443	2,654
MAINE	.13	26	2,753	2,771	2,724	2,829
MARYLAND	.79	49	2,975	2,920	2,867	3,598
MASSACHUSSETTS	.19	29	3,785	3,359	3,462	4,022
MICHIGAN		45	2,811	2,994	3,070	3,441
MINNESOTA	.02	15	3,542	3,312	3,307	3,535
*MISSISSIPPI	.08	20	1,994	2,011	2,003	2,099
MISSOURI	.25	32	2,521	2,452	3,034	2,801
*MONTANA	.03	17	3,579	3,370	4,386	3,676
NEBRASKA	-.24	7	3,966	3,883	3,441	3,268
NEVADA	-.32	5	3,362	3,193	2,665	2,873
NEW HAMPSHIRE	.25	33	3,154	2,902	3,209	3,148
*NEW JERSEY	.33	39	4,041	4,082	4,405	4,774
*NEW MEXICO	-.33	4	3,398	3,133	2,969	2,956
NEW YORK	.69	47	4,395	4,325	4,740	6,054
NORTH CAROLINA	.36	42	2,560	2,491	2,528	2,610
NORTH DAKOTA	-.31	6	4,333	3,758	3,519	3,125
OHIO	.09	22	3,317	2,791	2,870	3,327
*OKLAHOMA	-.07	11	2,553	2,557	2,702	2,467
*OREGON	.03	18	3,589	3,845	3,741	3,567
PENNSYLVANIA	.32	38	3,601	3,471	3,348	3,972
RHODE ISLAND	.14	27	3,787	3,530	3,821	3,768
*SOUTH CAROLINA	.02	16	2,466	2,623	2,276	2,201
*SOUTH DAKOTA	-.55	1	3,622	3,068	2,954	2,663
TENNESSEE	.39	43	1,791	1,803	2,030	2,277
TEXAS	.19	30	2,805	2,727	2,872	2,942
*UTAH	-.38	3	2,489	2,623	2,613	2,463
*VERMONT	.11	23	3,598	3,775	4,219	3,815
VIRGINIA	.64	46	2,745	2,727	3,050	3,355
WASHINGTON	.01	14	3,302	3,376	3,197	3,285
WEST VIRGINIA	.09	21	2,943	2,789	2,721	2,915
WISCONSIN	.35	40	3,739	3,537	3,855	3,997
WYOMING	.15	28	5,593	4,930	4,582	5,528

TABLE 6: MEASURES OF THE RELATIONSHIP BETWEEN DISTRICT POVERTY CONCENTRATION, 1979 AND DISTRICT OPERATING EXPENDITURES, BY STATE, 1984-85

STATE	CORRELATION	RANK OF CORRELATION	MEAN OPERATING EXPENDITURES — LO QUARTILE OF POVERTY	2ND QUARTILE OF POVERTY	3RD QUARTILE OF POVERTY	HI QUARTILE OF POVERTY
*ALABAMA	.09	25	2,106	1,944	1,903	2,080
ALASKA	-.13	41	11,908	7,027	6,500	7,448
*ARIZONA	.34	4	2,521	2,409	2,510	2,750
*ARKANSAS	.13	21	2,245	2,263	2,345	2,276
CALIFORNIA	.34	5	3,075	3,071	3,063	3,363
*COLORADO	-.02	35	3,400	3,145	3,045	3,313
CONNECTICUT	.00	33	4,305	4,010	3,623	3,967
DELAWARE	-.30	47	3,608	4,103	3,591	3,461
FLORIDA	-.06	36	3,297	3,440	3,080	3,164
*GEORGIA	.13	20	2,451	2,420	2,385	2,615
IDAHO	.15	18	2,045	2,044	1,914	2,181
HAWAII	..	..	..	..	..	..
ILLINOIS	.03	32	3,581	2,954	2,801	3,179
*INDIANA	.20	11	2,928	2,873	2,876	2,992
IOWA	.15	16	3,142	3,119	3,271	3,224
KANSAS	.08	27	3,214	3,225	3,305	3,307
*KENTUCKY	-.28	46	2,024	2,415	2,076	1,981
LOUISIANA	.15	17	2,608	2,481	2,515	2,767
MAINE	-.01	34	2,785	2,818	2,737	2,724
MARYLAND	-.48	49	3,619	3,005	3,004	2,952
MASSACHUSSETTS	.16	15	3,982	3,446	3,526	3,766
MICHIGAN	-.11	38	3,429	2,983	2,909	3,143
MINNESOTA	.21	10	3,346	3,638	3,670	3,548
*MISSISSIPPI	.04	30	1,957	2,073	1,991	2,079
MISSOURI	.18	13	2,851	2,518	2,486	3,184
*MONTANA	.05	28	3,273	4,528	2,843	4,271
NEBRASKA	.27	8	3,210	3,398	3,789	4,037
NEVADA	.27	9	2,871	2,667	3,015	3,409
NEW HAMPSHIRE	-.13	40	3,421	3,046	2,993	3,049
*NEW JERSEY	-.14	43	4,590	4,413	4,204	4,089
*NEW MEXICO	.29	7	2,857	3,006	3,084	3,260
NEW YORK	-.42	48	5,716	5,025	4,547	4,435
NORTH CAROLINA	.09	26	2,557	2,577	2,516	2,607
NORTH DAKOTA	.41	3	3,088	3,519	3,761	4,576
OHIO	.33	6	3,259	2,877	2,761	3,345
*OKLAHOMA	.12	22	2,426	2,754	2,512	2,598
*OREGON	-.11	39	3,696	3,684	3,494	3,887
PENNSYLVANIA	.17	14	3,882	3,364	3,329	3,764
RHODE ISLAND	.11	23	3,708	3,844	3,632	3,785
*SOUTH CAROLINA	.20	12	2,450	2,456	2,718	2,496
*SOUTH DAKOTA	.67	1	2,683	2,824	3,096	3,716
TENNESSEE	.05	29	2,006	2,196	2,152	2,113
TEXAS	-.07	37	2,926	2,879	2,879	2,805
*UTAH	.59	2	2,201	2,210	2,504	2,781
*VERMONT	-.16	44	4,282	3,521	4,058	3,660
VIRGINIA	-.21	45	3,418	2,712	2,926	3,120
WASHINGTON	.10	24	3,227	3,127	3,503	3,266
WEST VIRGINIA	-.14	42	2,927	2,752	2,745	2,839
WISCONSIN	.14	19	3,949	3,738	3,584	4,068
WYOMING	.04	31	5,901	4,697	4,832	5,914

note: The higher the correlation the lower the rank.

TABLE 7: MEASURES OF THE RELATIONSHIP BETWEEN DISTRICT MEDIAN FAMILY INCOME, 1979 AND DISTRICT TEACHER/STUDENT RATIO, BY STATE, 1984-85

STATE	CORRELATION	RANK OF CORRELATION	MEAN TEACHER/1000 STUDENTS --- LO QUARTILE OF INCOME	2ND QUARTILE OF INCOME	3RD QUARTILE OF INCOME	HI QUARTILE OF INCOME
*ALABAMA	.23	41	50.0	48.1	49.4	48.2
ALASKA	-.17	19	92.6	91.0	51.9	65.9
*ARIZONA	.05	36	57.7	51.8	49.8	50.2
*ARKANSAS	-.12	22	62.2	56.3	56.9	53.2
CALIFORNIA	-.05	31	43.4	42.5	42.7	41.9
*COLORADO	-.31	11	67.5	62.7	53.1	50.3
CONNECTICUT	.29	44	66.9	69.7	68.8	72.3
DELAWARE	.42	47	59.1	57.1	59.3	61.0
FLORIDA	-.35	8	60.0	55.6	59.4	55.4
*GEORGIA	-.11	23	55.9	54.5	53.3	53.7
IDAHO	-.22	16	53.6	47.7	49.3	47.1
HAWAII	..	..	..	..	..	..
ILLINOIS	.23	40	52.5	54.6	53.6	55.7
*INDIANA	-.07	28	52.8	51.5	53.0	51.4
IOWA	-.56	4	74.5	71.1	64.9	58.9
KANSAS	-.39	6	76.0	73.1	66.3	60.1
*KENTUCKY	.25	42	50.3	50.8	51.7	51.2
LOUISIANA	-.03	33	53.4	52.8	54.8	52.5
MAINE	-.07	29	65.8	62.2	61.0	61.9
MARYLAND	.02	35	56.1	57.3	54.0	55.5
MASSACHUSSETTS	.06	37	68.9	67.7	72.2	70.5
MICHIGAN	..	..	..	..	..	..
MINNESOTA	-.62	1	65.6	62.1	60.0	53.0
*MISSISSIPPI	-.33	10	54.7	55.5	54.0	52.0
MISSOURI	-.37	7	63.6	62.1	60.6	55.1
*MONTANA	-.28	12	75.3	65.4	65.8	53.6
NEBRASKA	-.39	5	75.4	68.8	59.6	50.2
NEVADA	-.24	15	56.8	56.7	47.4	51.3
NEW HAMPSHIRE	-.03	32	64.5	63.3	64.0	61.0
*NEW JERSEY	.40	46	61.3	64.4	66.3	67.7
*NEW MEXICO	-.06	30	57.9	54.8	52.6	52.8
NEW YORK	.50	48	65.8	56.1	62.2	66.7
NORTH CAROLINA	-.11	24	52.3	51.9	52.2	50.8
NORTH DAKOTA	-.60	2	87.4	76.5	70.7	53.7
OHIO	.13	39	52.7	51.8	51.4	53.1
*OKLAHOMA	-.34	9	66.5	64.9	57.3	55.8
*OREGON	-.11	25	60.3	56.7	54.6	54.1
PENNSYLVANIA	.29	43	56.4	54.8	54.2	58.7
RHODE ISLAND	.34	45	63.5	63.6	63.9	67.1
*SOUTH CAROLINA	-.17	20	56.1	55.9	56.6	54.6
*SOUTH DAKOTA	-.57	3	80.6	77.2	81.7	60.3
TENNESSEE	-.11	26	47.4	49.0	49.6	48.3
TEXAS	-.16	21	58.3	59.6	57.6	55.4
*UTAH	-.18	18	47.0	43.1	40.0	41.5
*VERMONT	.06	38	67.1	67.4	66.7	67.7
VIRGINIA	-.19	17	59.1	58.5	59.2	57.4
WASHINGTON	-.25	14	53.5	50.4	47.3	47.1
WEST VIRGINIA	-.08	27	66.1	62.9	60.8	63.7
WISCONSIN	.02	34	63.4	60.1	57.4	60.4
WYOMING	-.26	13	78.2	71.1	68.1	68.5

TABLE 8: MEASURES OF THE RELATIONSHIP BETWEEN DISTRICT POVERTY CONCNETRATION, 1979 AND DISTRICT STUDENT/TEACHER RATIO, 1984-85, BY STATE

STATE	CORRELATION	RANK OF CORRELATION	MEAN TEACHER/1000 STUDENTS --- LO QUARTILE OF INCOME	2ND QUARTILE OF INCOME	3RD QUARTILE OF INCOME	HI QUARTILE OF INCOME
*ALABAMA	.03	35	49	49	48	50
ALASKA	.23	17	62	52	63	97
*ARIZONA	.26	14	51	50	50	56
*ARKANSAS	.26	15	52	56	57	58
CALIFORNIA	.06	32	42	42	43	43
*COLORADO	.15	24	51	54	53	69
CONNECTICUT	-.18	44	71	69	69	69
DELAWARE	.04	34	59	61	60	59
FLORIDA	.20	20	56	57	57	59
*GEORGIA	.23	16	53	54	55	55
IDAHO	.33	11	47	48	49	52
HAWAII	..	..	..	..	..	..
ILLINOIS	-.24	46	56	54	55	52
*INDIANA	.09	28	52	51	52	53
IOWA	.34	10	61	64	62	74
KANSAS	.18	23	63	65	65	69
*KENTUCKY	-.10	42	51	52	51	51
LOUISIANA	-.04	39	53	53	55	52
MAINE	.14	26	62	62	61	66
MARYLAND	-.02	38	56	55	56	56
MASSACHUSSETTS	-.15	43	71	71	69	68
MICHIGAN	..	..	..	..	..	..
MINNESOTA	.59	1	53	59	59	67
*MISSISSIPPI	.15	25	53	52	54	56
MISSOURI	.35	9	56	58	61	62
*MONTANA	.39	5	58	54	65	79
NEBRASKA	.35	8	52	53	67	79
NEVADA	.22	19	51	48	55	57
NEW HAMPSHIRE	.06	33	64	62	62	65
*NEW JERSEY	-.34	47	67	66	65	62
*NEW MEXICO	.02	36	53	53	55	55
NEW YORK	-.63	48	66	64	64	56
NORTH CAROLINA	.38	6	51	51	52	54
NORTH DAKOTA	.57	2	54	71	80	82
OHIO	.07	30	53	51	52	53
*OKLAHOMA	.22	18	56	60	58	67
*OREGON	.13	27	54	54	57	59
PENNSYLVANIA	.09	29	58	54	54	57
RHODE ISLAND	-.22	45	66	68	61	63
*SOUTH CAROLINA	.26	12	55	55	57	56
*SOUTH DAKOTA	.57	3	60	79	83	78
TENNESSEE	.19	21	48	49	49	49
TEXAS	.06	31	56	58	57	58
*UTAH	.36	7	41	41	43	45
*VERMONT	-.01	37	67	68	67	67
VIRGINIA	.19	22	58	57	59	59
WASHINGTON	.26	13	47	47	50	51
WEST VIRGINIA	-.07	41	64	62	62	63
WISCONSIN	-.06	40	60	59	61	59
WYOMING	.44	4	69	67	75	82

note: The higher the correlation the lower the rank.

TABLE 9: CORRELATIONS OF SELECTED WITHIN STATE MEASURES OF EQUAL OPPORTUNITY, UNITED STATES, 1984-85

MEASURE OF EQUAL OPPORTUNITY	correlation of income/ expenditures	correlation of income/ teacher ratio	correlation of poverty/ expenditures	correlation of poverty/ teacher ratio
correlation of income/teacher ratio	.58 (.57)	1.00 (1.00)	-.45 (.34)	-.84 (.82)
correlation of poverty/ expenditures	-.73 (.63)	-.45 (.34)	1.00 (1.00)	.55 (.47)

Cell entries are correlations of the raw values of the equal opportunity measures in each state. Correlations of the state ranks on these measure are in parentheses.

TABLE 10: MEASURES OF THE RELATIONSHIP BETWEEN DISTRICT PER PUPIL PROPERTY VALUATION, 1984-85 AND DISTRICT OPERATING EXPENDITURES, 1984-85, BY STATE

STATE	CORRELATION	RANK OF CORRELATION	···MEAN OPERATING EXPENDITURES··· LO QUARTILE OF VALUATION	2ND QUARTILE OF VALUATION	3RD QUARTILE OF VALUATION	HI QUARTILE OF VALUATION
*ALABAMA	.21	6(tie)	1973	1926	2035	2046
ALASKA	.39	15(tie)	7040	8678	8528	8964
*ARIZONA	.31	13	2437	2499	2507	2812
*ARKANSAS	-.07	2	2406	2134	2287	2309
*COLORADO	.63	36(tie)	2985	3195	3517	3893
CONNECTICUT	.31	13	3771	3511	3842	4672
DELAWARE	.56	29(tie)	3112	3199	3965	3975
FLORIDA	.55	27	3245	3120	3053	3578
*GEORGIA	.31	13	2142	2208	2282	2827
IDAHO	.56	29(tie)	1871	1982	2208	2477
ILLINOIS	.63	36(tie)	3008	2688	3047	4318
*INDIANA	.16	3	3040	3159	2688	2758
IOWA	.40	17	3146	3159	3221	3443
KANSAS	.70	41	3026	3198	3448	4445
*KENTUCKY	.75	43(tie)	1933	1988	2005	2515
LOUISIANA	.52	26	2390	2407	2643	2781
MARYLAND	.80	45	2978	2925	3064	3971
MASSACHUSSETTS	.56	29(tie)	3144	3336	3734	4601
MICHIGAN	.39	15(tie)	3094	2923	3038	3713
MINNESOTA	.58	34	3327	3149	3419	4075
*MISSISSIPPI	.44	20	1885	1929	1939	2333
MISSOURI	.65	38(tie)	2314	2393	2586	3053
NEBRASKA	.69	40	3195	3913	4340	5074
NEVADA	.57	32(tie)	3126	2672	2903	3451
NEW HAMPSHIRE	.21	6(tie)	2677	3135	3062	3823
*NEW JERSEY	.30	11	4079	4070	4545	4768
NEW MEXICO	.17	4	3041	2991	3121	3199
NEW YORK	.48	25	4315	4586	4572	6632
NORTH CAROLINA	.42	19	2446	2407	2577	2738
NORTH DAKOTA	.20	5	3525	3126	3805	3371
OHIO	.47	23	2590	2952	3183	3520
*OKLAHOMA	.28	9	2416	2389	2513	2932
*OREGON	.26	8	3521	3575	3699	3929
PENNSYLVANIA	.45	21	3183	3171	3636	4226
RHODE ISLAND	.41	18	3472	3900	3782	3912
*SOUTH CAROLINA	-.09	1	2541	2428	2589	2575
*SOUTH DAKOTA	.47	23	2677	2846	3207	3665
TENNESSEE	.71	42	1831	1825	2118	2376
TEXAS	.60	35	2579	2708	2821	3364
*UTAH	.57	32(tie)	2201	2188	2651	2924
VIRGINIA	.56	29(tie)	2616	2928	2751	3960
WASHINGTON	.47	23	3115	3219	3292	3714
WEST VIRGINIA	.65	38(tie)	2715	2784	2833	2964
WISCONSIN	.29	10	3899	3642	3654	4358
WYOMING	.75	43(tie)	4619	4964	5199	6692

TABLE 11: MEASURES OF THE RELATIONSHIP BETWEEN DISTRICT PER PUPIL PROPERTY VALUATION, 1984-85 AND TEACHER/STUDENT RATIO, 1984-85, BY STATE

STATE	CORRELATION	RANK OF CORRELATION	...MEAN OPERATING EXPENDITURES... LO QUARTILE OF VALUATION	2ND QUARTILE OF VALUATION	3RD QUARTILE OF VALUATION	HI QUARTILE OF VALUATION
*ALABAMA	.03	6	49.4	47.5	49.3	48.7
ALASKA	.36	30	57.9	93.6	68.3	69.0
*ARIZONA	.11	13	49.8	48.8	52.5	54.0
*ARKANSAS	.04	7(tie)	58.8	52.1	55.3	53.8
*COLORADO	.37	32	53.4	49.5	52.5	64.3
CONNECTICUT	.35	29	65.7	68.8	68.4	73.7
DELAWARE	.37	32	57.0	58.6	61.3	60.0
FLORIDA	-.20	1	59.8	56.8	56.5	55.7
*GEORGIA	.14	16	55.4	53.9	53.6	54.8
IDAHO	.47	39	46.1	47.7	49.1	58.1
ILLINOIS	.48	40	51.2	53.3	56.1	60.9
*INDIANA	.06	11(tie)	49.6	51.7	52.9	53.5
IOWA	.61	44	59.6	63.7	70.7	80.3
KANSAS	.50	41	61.8	61.8	69.4	86.5
*KENTUCKY	.38	34	49.0	50.9	50.2	53.5
LOUISIANA	.05	9(tie)	51.7	58.3	51.6	54.0
MARYLAND	.41	35(tie)	55.5	55.3	51.7	58.8
MASSACHUSSETTS	.13	14(tie)	63.6	68.7	68.9	66.9
MINNESOTA	.05	9(tie)	55.3	56.4	55.7	57.4
*MISSISSIPPI	.04	7(tie)	53.8	55.0	52.2	53.5
MISSOURI	.01	5	56.6	58.0	59.5	57.0
NEBRASKA	.52	42	48.8	54.6	68.1	71.9
NEVADA	.43	37	53.8	47.8	52.3	52.9
NEW HAMPSHIRE	.25	25	61.0	63.0	61.0	69.1
*NEW JERSEY	.24	22(tie)	62.2	64.3	68.0	66.2
NEW MEXICO	-.07	2	54.3	53.3	53.8	51.6
NEW YORK	.37	32	61.9	62.8	56.9	71.4
NORTH CAROLINA	.13	14(tie)	51.1	50.1	52.4	52.0
NORTH DAKOTA	.15	17	63.9	56.6	75.6	59.6
OHIO	.45	38	50.5	52.2	52.1	53.9
*OKLAHOMA	.21	20(tie)	59.5	55.4	58.3	61.0
*OREGON	-.01	4	54.2	54.0	57.5	56.2
PENNSYLVANIA	.41	35(tie)	52.7	53.7	55.9	60.8
RHODE ISLAND	.25	25	62.3	64.3	66.0	66.9
*SOUTH CAROLINA	-.04	3	58.0	54.6	55.4	55.5
*SOUTH DAKOTA	.37	43	59.1	68.0	85.4	87.7
TENNESSEE	.06	11(tie)	47.1	48.5	49.0	48.8
TEXAS	.32	28	55.9	56.8	55.5	59.4
*UTAH	.21	20(tie)	40.7	42.6	43.3	45.6
VIRGINIA	.24	22(tie)	57.5	58.3	56.8	59.9
WASHINGTON	.25	25	47.7	48.1	47.4	51.2
WEST VIRGINIA	.28	27	61.3	63.3	63.4	63.3
WISCONSIN	.19	19	58.0	59.2	58.9	63.7
WYOMING	.17	18	67.8	73.7	73.7	70.3

TABLE 12: CORRELATIONS BETWEEN DISTRICT PROPERTY VALUATION, 1984-85, AND DISTRICT REVENUE BY SOURCE, 1984-85, BY STATE

STATE	LOCAL REVENUES ONLY	LOCAL AND STATE REVENUES	TOTAL REVENUES
*ALABAMA	.47	.37	.18
ALASKA	-.02	.29	.32
*ARIZONA	.58	.53	.38
*ARKANSAS	-.07	-.14	-.09
*COLORADO	.85	.74	.73
CONNECTICUT	.37	.33	.32
DELAWARE	.67	.63	.58
FLORIDA	.91	.74	.72
*GEORGIA	.33	.31	.31
IDAHO	.69	.55	.43
ILLINOIS	.72	.62	.56
*INDIANA	.31	.22	.19
IOWA	.85	.44	.46
KANSAS	.94	.71	.69
*KENTUCKY	.88	.84	.77
LOUISIANA	.62	.57	.54
MARYLAND	.79	.77	.79
MASSACHUSSETTS	.63	.56	.53
MICHIGAN	.78	.51	.43
MINNESOTA	.93	.67	.62
*MISSISSIPPI	.54	.51	.43
MISSOURI	.94	.87	.85
NEBRASKA	.73	.70	.66
NEVADA	.92	.65	.58
NEW HAMPSHIRE	.26	.25	.25
*NEW JERSEY	.54	.38	.31
NEW MEXICO	.56	.10	.23
NEW YORK	.58	.50	.51
NORTH CAROLINA	.50	.51	.42
NORTH DAKOTA	.06	.06	.13
OHIO	.76	.49	.43
*OKLAHOMA	.32	.32	.28
*OREGON	.31	.30	.30
PENNSYLVANIA	.61	.48	.43
RHODE ISLAND	.60	.50	.47
*SOUTH CAROLINA	.15	-.04	-.14
*SOUTH DAKOTA	.74	.78	.40
TENNESSEE	.74	.71	.67
TEXAS	.75	.63	.59
*UTAH	.82	.68	.66
VIRGINIA	.61	.58	.57
WASHINGTON	.57	.49	.44
WEST VIRGINIA	.86	.64	.61
WISCONSIN	.58	.34	.29
WYOMING	.96	.80	.68

individual States may have changed over this period, the average nationwide has remained relatively constant. There has been negligible change in eight years.

A closer look at the relationships comprising our general assessment of equal opportunity allows us to look for patterns in State rankings on individual measures.[15] In terms of rankings on correlations for any pair of wealth/ resource indicators, three groups can be differentiated:

1) States with the highest equal opportunity rankings,

2) States with the lowest equal opportunity rankings, and

3) States with correlations very near zero (complete fiscal neutrality).[16]

In the paragraphs that follow, we use this framework in assessing six pairs of wealth/resource relationships.

Median Family Income with Operating Expenditures

In table 5, the States exhibiting the highest associations between high income/low expenditures (high equal opportunity) are South Dakota, Alaska, and Utah. States with the strongest positive correlation of median family income to high expenditures (a low equal opportunity characteristic) are Maryland, Delaware, and New York. Although the States with high positive correlations are very diverse, of the 13 States with the largest negative correlations--that is, greater equal opportunity--all but one (California) are rural, mountain, or grain belt States.

In total, 14 States exhibit correlations between -.10 and .10, with Washington, South Carolina, Minnesota, Oregon, Montana, and Arizona very near zero. Thirteen of the correlations are negative and 36 are positive.

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[15]All State ranks for correlations (tables 5 through 8) are calculated such that a ranking of 1 reflects relatively greater equal opportunity. This approach implies that when median family income is used as a wealth indicator, large negative correlations receive high rankings, and when poverty concentration is the wealth indicator, high positive correlations yield high rankings.

[16]We consider the highest 3 ranks, the lowest 3 ranks, and States with a correlation between -.05 and .05.

Poverty Concentration with Operating Expenditures

When per pupil operating expenditures are correlated with district poverty concentration (table 6), South Dakota, Utah, and North Dakota exhibit the highest positive correlations--an indicator of a relatively high degree of equal opportunity.

Similar to the situation with median family income, the States ranking highest on equal opportunity with respect to poverty concentration are rural, mountain, or grain belt States, although in this case the pattern is less consistent. The States exhibiting the strongest association of high poverty with low operating expenditures are Maryland, New York, and Delaware--precisely the same States that scored low on equal opportunity with respect to median family income.

A total of 14 States have correlations between -.10 and .10, with Connecticut, Louisiana, Colorado, Mississippi, Wyoming, Montana, and Tennessee very near zero. Sixteen States have negative correlations, 33 positive.

Median Family Income with Teacher/Student Ratio

In table 7, equal opportunity is measured using median family income as a wealth indicator and teacher/student ratio as a resource measurement. Minnesota, North Dakota, and South Dakota have the greatest negative correlations between teacher/student ratio and median family income, which indicates the teacher/student ratios are higher in low-income districts. The three highest positive correlations are registered for New York, Delaware, and New Jersey. It is interesting to note that the six States with the highest positive correlations are all geographically contiguous.

Six States show correlations very near zero: Arizona, California, Louisiana, Maryland, New Hampshire, and Wisconsin. Six more States have correlations between -.10 and .10. In all, 33 States have negative correlations, whereas fifteen show positive correlations.

Poverty Concentration with Teacher/Student Ratio

Data describing the association between teacher/student ratio and poverty concentration are presented in table 8. High positive correlations indicate that high-poverty districts tend to be allocated more teacher resources per 1,000 pupils.

Minnesota, North Dakota, and South Dakota register the highest positive correlations, once again displaying a pattern of rural, mountain, or grain belt States. New York, New Jersey, and Illinois show the highest negative correlations, meaning the poorest districts in those States receive fewer teacher resources.

Six States--Vermont, Maryland, New Mexico, Alabama, Louisiana, and Delaware--have correlations very near zero. A total of 15 States have correlations between -.10 and .10.

Property Wealth with Operating Expenditures

Correlations between per pupil property wealth and student resources are significantly stronger than the relationships between per pupil property wealth and the other wealth measures. (See table 4). In fact, the average correlation for operating expenditures is twice as high as that for teacher/student ratio, which in turn is nearly twice as high as that found in any of the other four average equal opportunity measures.[17] In tables 10 and 11, we present summary measures of the relationship between property wealth and two student resource variables--district operating expenditures and teacher/student ratio--by State.

What is striking in table 10, which shows the relationship between property wealth and operating expenses, is the number of States with correlations greater than .50 (44 percent of all States) and the infrequent occurrence of negative correlations (only 4 percent). It is safe to say that a moderate or even a high correlation between property wealth and operating expenditures is the norm in 1984-85.

Two States have negative correlations, South Carolina and Arkansas. Indiana, New Mexico, North Dakota, Alabama, and New Hampshire form the next cluster in terms of equity rankings on this relationship, although their correlations are considerably greater than the first two States. The States with the highest correlations, exhibiting positive correlations greater than .70, are Kentucky, Wyoming, Tennessee, and Kansas.

Property Wealth with Teacher/Student Ratios

Table 11, which displays data on the relationship between property wealth and the dispersion of teacher/student ratios, shows considerably smaller correlations, yet by no means are they insignificant. Thirty-nine percent of all correlations are greater than .30 and only 9 percent are negative. We can conclude that it is certainly not rare for States to exhibit moderate correlations between property values and teacher/student

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[17]It cannot be concluded, however, that all of the observed difference is a result of structural differences in equal opportunity. These correlations are also subject to differential variances of the wealth variables, a condition which makes the comparison of correlations a tenuous endeavor.

ratios--meaning districts with greater property wealth tend to have more teachers per 1,000 pupils.

Four States have negative correlations, and hence rank high for this measure of equal opportunity: Florida, New Mexico, South Carolina, and Oregon. These four are closely followed by a group of States with correlations less than .10: Missouri, Alabama, Mississippi, Arkansas, Minnesota, Louisiana, Indiana and Tennessee. The States with the highest correlations are Iowa, South Dakota, Nebraska, and Kansas.

In terms of both resource variables--operating expenditures and teacher/student ratios--a number of States rank consistently high on equal opportunity: South Carolina, Arkansas, Indiana, New Mexico, and Alabama. Three States--Kansas, Nebraska, and Illinois--rank low on equity across resources.

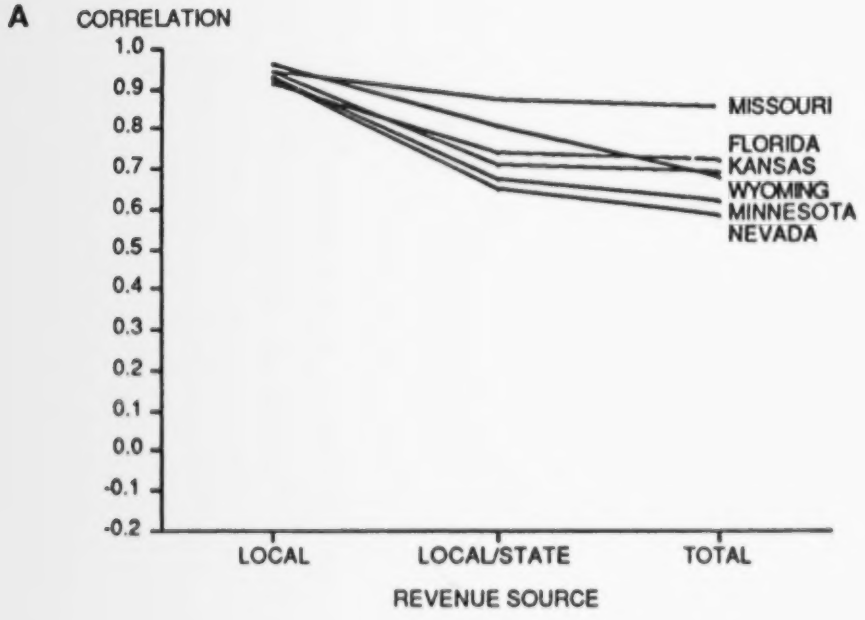
Property Wealth and Revenue Source

It is not surprising to find such high correlations between property wealth and operating expenditures. First, property wealth has a direct relation to revenues and, concomitantly, expenditures. Despite the increase in State funding shares, local property tax remains vital for the generation of school district funds. Second, the cost of education in areas with high property wealth--mainly urban and metropolitan areas--tends to be higher, possibly due to such factors as municipal overburden and higher salary schedules.

Still, though a large portion of State revenues is raised from assessable properties, in nearly all States the largest share of revenues is from State funding. And nearly all States have some provision to equalize local district revenues through the distribution of these funds. Our expectation would be, as a result, that correlations between property wealth and local revenues should be higher than those between property wealth and the combination of local and State revenues together. The remaining revenue source, Federal contributions, although by far the smallest of the three, is also not insignificant. Does the Federal contribution increase equal opportunity with respect to property wealth over what would otherwise be the result from State and local revenues only?

Table 12 and figures 1A through 1D display the data on this issue. Not surprisingly, we find relatively high correlations in the "Local Revenues Only" column of table 12. The average correlation is .61. Again, as we might expect, this average is higher than any of the other equal opportunity correlations we have previously examined, and, indeed, in a few States correlations approach unity: in Wyoming the

Figure 1
Correlations of Property Values with Revenues by Source by State



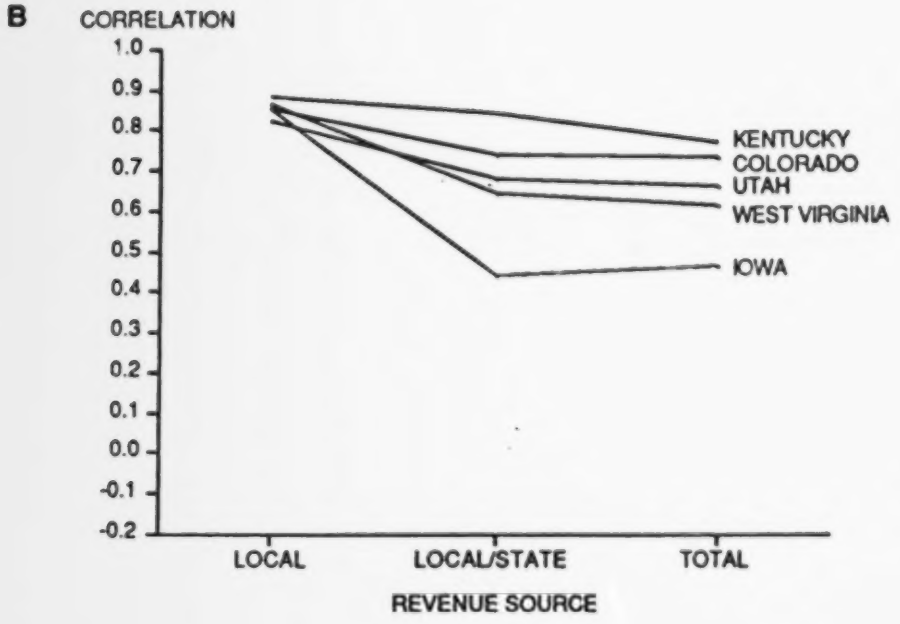
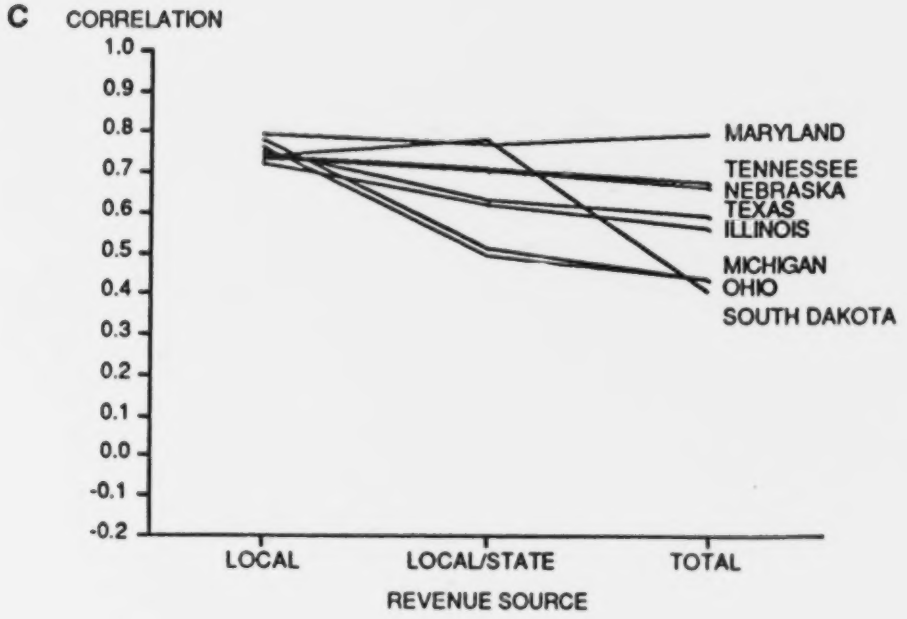


Figure 1

Correlations of Property Values with Revenues by Source by State



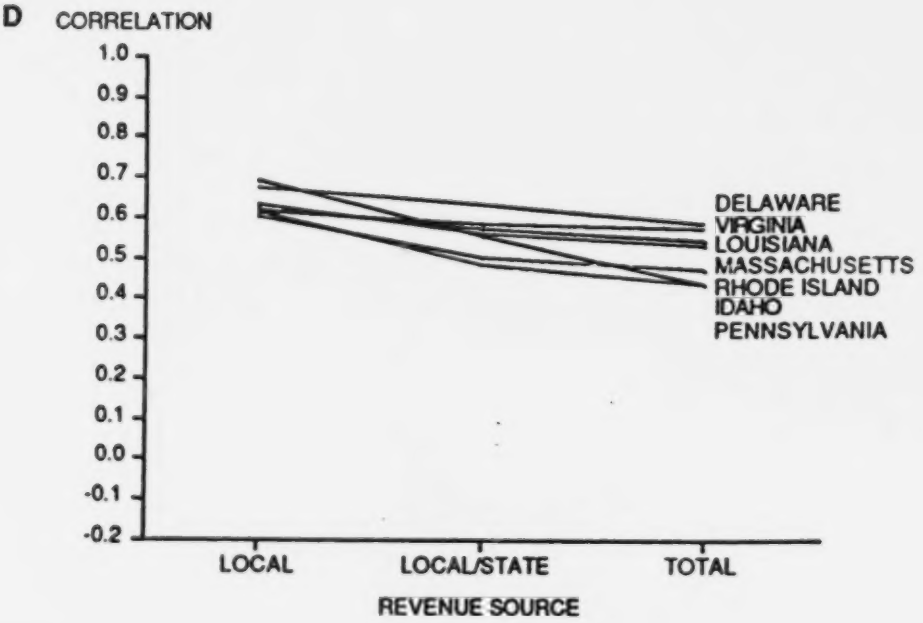


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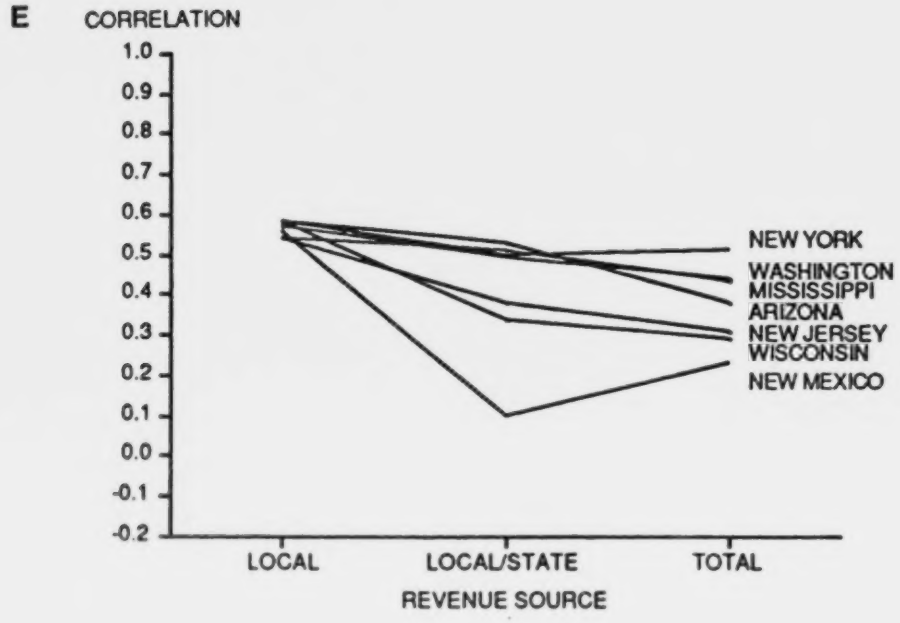
Figure 1
Correlations of Property Values with Revenues by Source by State



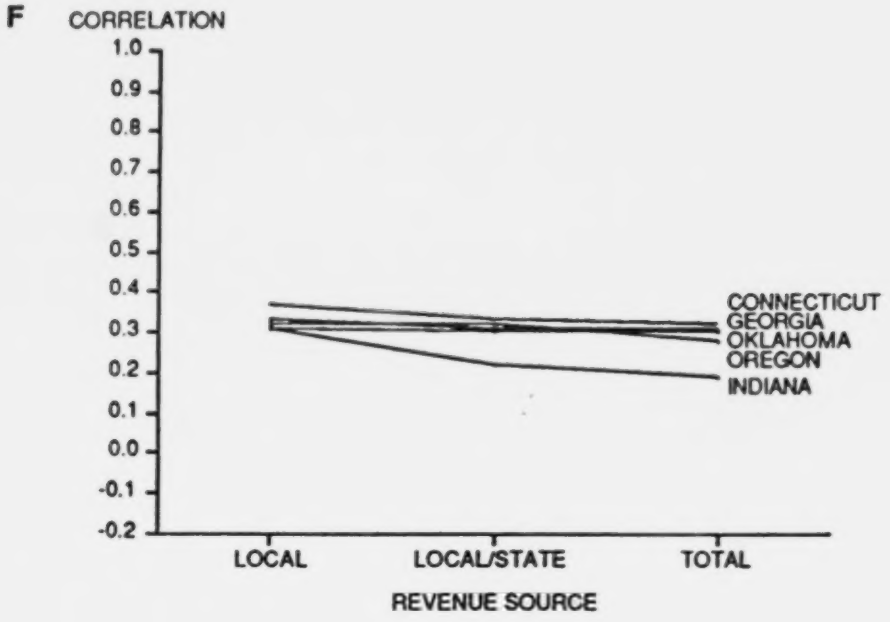


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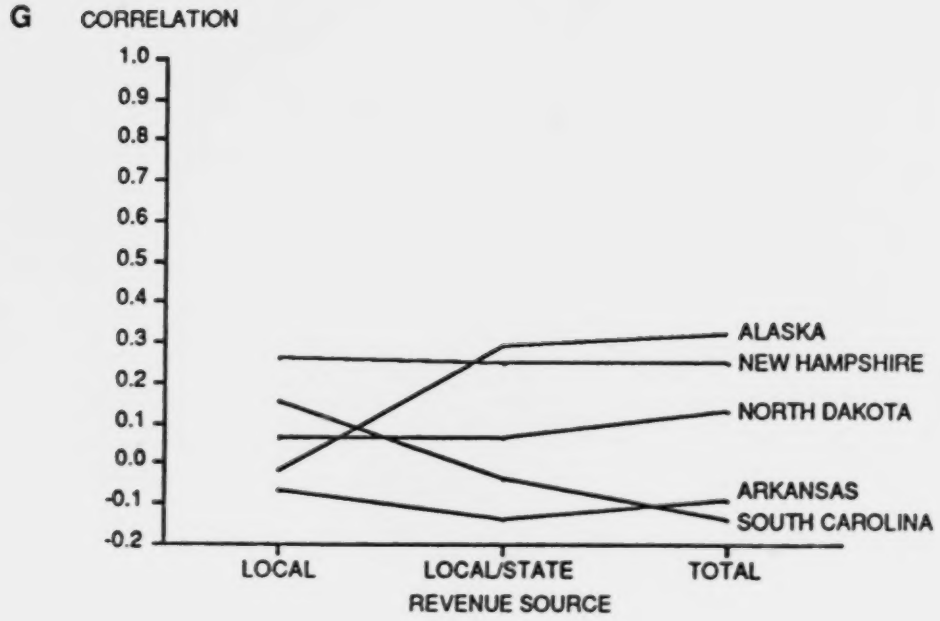
Figure 1

Correlations of Property Values with Revenues by Source by State



correlation is .96. In Missouri, Minnesota, Kansas, and Florida correlations are all greater than .90.

We would expect correlations to weaken considerably when State revenues are added to the local resource base. The second column in table 12 displays these correlations. The average correlation in the second column is .50, a significant but certainly not major decrease from the average found in the local revenue only column. No States had correlations above .90, and only three States--Wyoming, Missouri, and Kentucky--registered greater than .80.

Our expectations concerning the impact of Federal revenues were also confirmed. Column 3 in table 12 shows a slight weakening in the value of intrastate correlations, i.e., a decrease significantly less than that associated with the impact of State revenues. Although Federal funds do not have equalization mandates or goals, Chapter 1 of ECIA, by far the largest share of Federal funds, directs these payments to high poverty areas. Since poverty rates and property wealth are moderately and negatively correlated, we should expect slight increases in equal opportunity resulting from Federal funds.

This is, in fact, the case. The average correlation in column 3 of table 12 is .46, slightly less than that found in the second column of the table. Figures 1A through 1G depict the effects of these revenue components on equal opportunity, and the trends we noted in table 12 are also displayed in these graphs. For most States, there is a moderately steep slope from local revenues only to local and State revenues, and a slightly attenuated slope from local and State revenues to total revenues.

There are States whose patterns depart radically from this tendency, however. South Dakota (figure 1B), for example, actually shows decreased equal opportunity when State revenues are added to the local base, and manifests significant increases in equal opportunity with the addition of Federal funds. Alaska (figure 1D), starting from a local base of near perfect equity, finds much less equity when State revenues are added. New Mexico (figure 1C) starts with a local base of moderately low equal opportunity, but changes to near perfect equity when State revenues are added to the resource base. Federal contributions in New Mexico decrease equality significantly, but not to its baseline level. Other States exhibit nearly constant slopes across all three revenue sources.

VI. CONCLUSIONS AND OBSERVATIONS

Although the past decade has seen the fiscal equity field at low ebb, it has not been a time of total inactivity. States have been constantly modifying and replacing formulas in response to internal pressures and State needs. As a consequence of the "excellence" movement, additional efforts at lowering student/teacher ratios have been made. Meanwhile, the amount of Federal funding relative to State and local shares has declined, while the State portion has grown significantly. All of these developments have impact on the degree of school finance equity.

Many States shifted either towards or away from increased equality. Yet, on balance, the nation as a whole has shown no systematic movement in either direction. The state of fiscal equity nationwide is much the same as it was eight years ago.

Comparing equality of different resources, we find that operating expenditures are more heterogeneous than teacher/student ratios. We hesitate to conclude "more equal," since the natural boundaries on teacher/student ratios are probably more restrictive than they are on either revenues or expenditure measures. We have also found property wealth to be more highly correlated with student resources than either poverty percent or median family income.

Finally, we find that State revenues have some moderating effect on inequality, and that Federal revenues have a similar, albeit significantly smaller, impact.

TABLE A1:

SELECTED EQUITY MEASURES OF PER PUPIL OPERATING EXPENDITURES BY STATES, 1984-85

STATE	FEDERAL RANGE RATIO	MCLOONE INDEX	COEFFICIENT OF VARIATION	THEIL'S MEASURE (X100)
*ALABAMA	0.40	0.95	0.11	0.55
ALASKA	1.57	0.85	0.52	9.77
*ARIZONA	0.58	0.91	0.17	1.30
*ARKANSAS	0.48	0.92	0.13	0.86
CALIFORNIA	0.43	0.92	0.13	0.79
*COLORADO	0.34	0.88	0.12	0.75
CONNECTICUT	0.74	0.91	0.21	1.96
DELAWARE	0.41	0.84	0.13	0.82
FLORIDA	0.37	0.91	0.09	0.45
*GEORGIA	0.80	0.90	0.18	1.56
IDAHO	0.56	0.91	0.17	1.31
ILLINOIS	1.21	0.85	0.25	2.89
*INDIANA	0.53	0.90	0.15	1.02
IOWA	0.25	0.96	0.07	0.25
KANSAS	0.59	0.93	0.16	1.14
*KENTUCKY	0.63	0.94	0.17	1.37
LOUISIANA	0.41	0.93	0.13	0.75
MAINE	0.59	0.90	0.18	1.46
MARYLAND	0.60	0.94	0.15	1.14
MASSACHUSETTS	0.91	0.90	0.24	2.59
MICHIGAN	0.75	0.86	0.20	1.81
MINNESOTA	0.58	0.92	0.16	1.14
*MISSISSIPPI	0.52	0.91	0.17	1.25
MISSOURI	0.96	0.90	0.22	2.19
*MONTANA	1.44	0.84	0.74	13.32
NEBRASKA	0.90	0.86	0.23	2.39
NEVADA	0.19	1.00	0.10	0.46

TABLE A1 (CONTINUED)

STATE	FEDERAL RANGE RATIO	MCLOONE INDEX	COEFFICIENT OF VARIATION	THEIL'S MEASURE (X100)
NEW HAMPSHIRE	0.97	0.91	0.27	2.88
*NEW JERSEY	0.76	0.87	0.18	1.62
*NEW MEXICO	0.48	0.91	0.16	1.09
NEW YORK	0.89	0.96	0.22	2.20
NORTH CAROLINA	0.33	0.94	0.09	0.40
NORTH DAKOTA	0.80	0.91	0.28	2.77
OHIO	0.90	0.90	0.24	2.51
*OKLAHOMA	0.59	0.92	0.19	1.58
*OREGON	0.50	0.92	0.13	0.88
PENNSYLVANIA	0.89	0.89	0.19	1.77
RHODE ISLAND	0.32	0.91	0.11	0.62
*SOUTH CAROLINA	0.40	0.96	0.10	0.46
*SOUTH DAKOTA	0.66	0.90	0.18	1.52
TENNESSEE	0.70	0.89	0.18	1.53
TEXAS	0.64	0.91	0.18	1.43
*UTAH	0.40	0.92	0.16	1.34
*VERMONT	0.47	0.82	0.31	5.02
VIRGINIA	0.90	0.91	0.22	2.31
WASHINGTON	0.51	0.95	0.16	0.99
WEST VIRGINIA	0.22	0.96	0.07	0.21
WISCONSIN	0.50	0.92	0.14	0.95
WYOMING	0.88	0.92	0.24	2.66

TABLE A2:

SELECTED EQUITY MEASURES OF TEACHERS PER 1,000 STUDENTS BY STATE, 1984-85

STATE	FEDERAL RANGE RATIO	MCLOONE INDEX	COEFFICIENT OF VARIATION	THEIL'S MEASURE (X100)
ALABAMA	0.25	0.95	0.07	0.26
ALASKA	1.17	0.90	0.30	4.03
ARIZONA	0.31	0.96	0.14	0.63
ARKANSAS	0.46	0.93	0.13	0.81
CALIFORNIA	0.29	0.93	0.21	1.35
COLORADO	0.48	0.94	0.16	1.13
CONNECTICUT	0.45	0.93	0.14	0.80
DELAWARE	0.12	0.95	0.07	0.26
FLORIDA	0.21	0.96	0.06	0.20
GEORGIA	0.31	0.93	0.09	0.38
IDAHO	0.40	0.94	0.13	0.82
ILLINOIS	0.48	0.96	0.14	0.92
INDIANA	0.32	0.93	0.33	1.87
IOWA	0.66	0.91	0.16	1.22
KANSAS	0.70	0.93	0.18	1.55
KENTUCKY	0.27	0.94	0.08	0.31
LOUISIANA	0.26	0.93	0.11	0.59
MAINE	0.37	0.94	0.10	0.49
MARYLAND	0.21	0.95	0.06	0.18
MASSACHUSETTS	0.92	0.88	0.21	1.97
MINNESOTA	0.46	0.94	0.23	1.73
MISSISSIPPI	0.34	0.93	0.09	0.38
MISSOURI	0.54	0.92	0.35	3.44
MONTANA	1.20	0.87	0.29	3.44
NEBRASKA	0.90	0.94	0.33	4.26
NEVADA	0.26	1.00	0.09	0.34

TABLE A2 (CONTINUED)

STATE	FEDERAL RANGE RATIO	MCLOONE INDEX	COEFFICIENT OF VARIATION	THEIL'S MEASURE (X100)
NEW HAMPSHIRE	0.40	0.92	0.14	0.80
NEW JERSEY	0.38	0.93	0.20	1.13
NEW MEXICO	0.30	0.95	0.10	0.42
NEW YORK	0.42	0.91	0.24	1.97
NORTH CAROLINA	0.20	0.97	0.05	0.15
NORTH DAKOTA	1.15	0.92	0.30	3.77
OHIO	0.30	0.95	0.18	0.94
OKLAHOMA	0.59	0.95	0.18	1.42
OREGON	0.43	0.96	0.13	0.74
PENNSYLVANIA	0.45	0.92	0.39	4.18
RHODE ISLAND	0.38	0.95	0.09	0.45
SOUTH CAROLINA	0.20	0.95	0.06	0.18
SOUTH DAKOTA	1.00	0.92	0.23	2.45
TENNESSEE	0.34	0.93	0.09	0.41
TEXAS	0.41	0.93	0.13	0.79
UTAH	0.19	0.97	0.10	0.42
VERMONT	0.65	0.91	0.15	1.15
VIRGINIA	0.33	0.95	0.08	0.28
WASHINGTON	0.34	0.95	0.13	0.67
WEST VIRGINIA	0.24	0.96	0.06	0.18
WISCONSIN	0.33	0.94	0.10	0.49
WYOMING	0.44	0.97	0.16	1.10

TABLE A3:

PROPERTY VALUATION METHOD BY STATE

STATE	EQUALIZED	ASSESSED
ALABAMA	X	
ALASKA	X	
ARIZONA	X	
ARKANSAS	X	
COLORADO	X	
CONNECTICUT	X	
DELAWARE	X	
FLORIDA	X	
GEORGIA	X	
IDAHO	X	
ILLINOIS	X	
INDIANA		X
IOWA		X
KANSAS		X
KENTUCKY		X
LOUISIANA		X
MARYLAND		X
MASSACHUSETTS	X	
MICHIGAN	X	
MINNESOTA	X	
MISSISSIPPI		X
MISSOURI	X	
NEBRASKA		X
NEVADA		X

TABLE A3 (CONTINUED)

STATE	EQUALIZED	ASSESSED
NEW HAMPSHIRE	X	
NEW JERSEY	X	
NEW MEXICO		X
NEW YORK	X	
NORTH CAROLINA	X	
NORTH DAKOTA		X
OHIO		X
OKLAHOMA		X
OREGON	X	
PENNSYLVANIA	X	
RHODE ISLAND	X	
SOUTH CAROLINA	X	
SOUTH DAKOTA	X	
TENNESSEE	X	
TEXAS	X	
UTAH	X	
VIRGINIA		X
WASHINGTON	X	
WEST VIRGINIA		X
WISCONSIN	X	
WYOMING		X